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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,165	01/30/2002	Hiroshi Ishii	020073	4354

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EXAMINER

TIBBITS, PIA FLORENCE

ART UNIT

PAPER NUMBER

2838

DATE MAILED: 08/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AC

Office Action Summary	Application No.	Applicant(s)
	10/030,165	ISHII ET AL.
	Examiner	Art Unit
	Pia F Tibbits	2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 December 2003 and 05 March 2002.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 4-8,10-13 and 16-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 4-8,10-13 and 16-20 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 30 January 2002 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .

2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.5. 6) Other: _____ .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the battery unit installation section, the device main body side, the display for a remaining capacity, the display for a charge request, the alarm must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. For example, on page 18: "the driver 9 to drive a not shown running section...".

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: narrating the claims in the specification does not provide support for limitations recited in the claims, unless a description is also included, such as the battery unit installation section, the device main body side, and a predetermined remaining capacity. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4: the statement "wherein said charger includes means for reading at least an information about charge and discharge states of the storage battery pack stored in said memory of said each battery unit, and means for writing into said memory" is confusing since a) the specification describes the charger as having the functions of reading/writing from/into memories 11, 12 and 13 [see page 18], in other words, the charger communicates with means/memories located in the batteries; and b) the functions themselves, i.e., reading/writing from/into memories have been claimed already at the beginning of claim 1.

Claim 5: the statement "charger has means for deciding a charge order by mutually referring to the information stored in said memory of said each mounted battery unit" is confusing since a) presumably, "each charger provided for each battery unit" would have to firstly communicate "with means/memories located in the batteries" (claim 1), and b) "the charge order" is not specified.

Claim 7: the statement "the charger is constituted to be a unit attachable/detachable to/from said electric device main body, and is provided on said device main body side" is confusing since a) the main device body is not defined, and b) applicant claims limitations of TWO different embodiments: one with the charger separate (claim 1 and fig.1), and one with the charger integral with the battery (claim 5 and fig.2). An election of species could be issued in the future.

Claim 13: the use of "and/or" make the claim language confusing because it is not clear what applicant is actually claiming. Furthermore, applicant is reminded that "or" should only be used with alternate terms, e.g., rod or bars, etc.

Claim 16: the statement "discharging in order the storage battery packs" is not clear since no order is further specified;

The statement "charging them by said controller and said charger" is confusing since the controller monitors the operation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-8, 10-13, and 16-19 are rejected, as best as they can be understood at this time, under 35 U.S.C. 103(a) as being unpatentable over **Sakai et al.** [hereinafter Sakai][5969624] in combination with **EP 665628** [hereinafter EP].

Sakai discloses in figures 1-7 an electric device comprising a plurality of battery units 2A-2C detachably mounted thereon; a driver/electric motor 1 for driving a load/wheels 33A and 33B; a charger/generator 4 for charging the battery pack by referring to the information stored in a memory; and a controller/ECU 8 for controlling supply of electric power from each battery unit to the driver by referring to the information received from exclusive battery sensors 5A to 5D. With regard to connectors provided for each battery unit: the patent discloses that the plural batteries are connected in series, and each battery is independently connected to the charge control means through exclusive charge lines[see also column 3, lines 1-11].

Sakai does not disclose each battery unit constituted by pairing a storage battery pack with a memory for storing at least information about charge and discharge states of the storage battery pack; the information stored in said memory of said each mounted battery unit; means for reading the information about the battery; and means for writing into the memory the information about the battery.

EP discloses in the abstract a "smart" battery, which includes intelligence to allow the battery system to control various aspects of the charging and discharging of the battery, as well as to constantly monitor the battery voltage, temperature, current charge/discharge rate, and remaining capacity of the battery. This alleviates the need for external systems to include such circuitry and control elements and allows, if desired, a variety of intelligent battery systems to be developed for use with a given electronic system or family of electronic systems, with each battery being able to control its own charge/discharge rates and monitoring functions. The intelligent battery system is capable of communicating with an external device such as a computer powered by the intelligent battery system, in order to provide an

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indication of the charge/discharge rate, the state of the battery charge, etc. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Sakai's apparatus and use "smart batteries", as disclosed by EP, in order to allow each battery being able to control its own charge/discharge rates and monitoring functions, and consequently, less of a chance for individual monitoring errors.

With regard to the charger having means for reading and means for writing the information about the battery: ECU 8, a microprocessor, is monitoring all the battery functions by using a "memory" where information is written as input or retrieved as output, therefore, it is an inherent function of the battery controller to read and write battery information about the battery, and MPEP 2100 states that the disclosure of a limitation may be expressed, implicit or **inherent**.

As to claim 5, a charger being provided in each battery unit: it would have been obvious to a person having ordinary skill in the art at the time the invention was made to make integral the charger and the smart battery, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routing skill in the art in order to individualize the charging of each battery. **Howard v. Detroit Stove Works**, 150 U.S. 164 (1893).

As to claim 6, the patent discloses that the plural batteries are connected in series, and each battery is independently connected to the charge control means through exclusive charge lines [see also column 3, lines 1-11]. Batteries 2A to 2D are connected to DC/DC converter 6 through charge lines 61A to 61D. Each of batteries 2A to 2D has a pair of positive and negative terminals connected to corresponding positive and negative terminals of one of the independent output sources of DC/DC converter 6[see also column 5, lines 10-15]. The detected terminal voltage, i.e., each output of battery sensor 2i (i=A to D), is sent to ECU 8 for use in the state-of-charge judgment of respective batteries 2A to 2D.

As to claim 7, the charger being attachable/detachable to/from the electric device: it would have been obvious to one of ordinary skill in the art at the time the invention was made to make separable the power source housing and the charger housing, since it has been held that constructing a formerly

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integral structure in various elements involves only routine skill in the art, in order to make it easier to replace faulty parts. See *Nerwin v. Erlichman*, 168 USPQ 177, 179.

As to claim 8, the charger being attachable/detachable to/from the electric device: it would have been obvious to one of ordinary skill in the art at the time the invention was made to make separable the power source housing and the charger housing, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art, in order to make it easier to replace faulty parts. See *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Official Notice is taken with regard to claim 10 since it is well known in the art to use an ECU in order to control all functions of a device/hybrid vehicle.

As to claim 11, Sakai and EP clearly disclose a memory for each battery unit, which also stores information about characteristics of the storage battery pack, and the charger has means for controlling charge of said storage battery pack, by referring to the information about the characteristics of the storage battery pack stored in the memory of each battery unit, in accordance with the characteristics.

As to claim 12, Sakai and EP clearly disclose a memory for each battery unit, which also stores information about characteristics of the storage battery pack, and the charger has means for controlling discharge of said storage battery pack, by referring to the information about the characteristics of the storage battery pack stored in the memory of each battery unit, in accordance with the characteristics.

With respect to the method claims 16-19: the method steps will be met during the normal operation of the apparatus described above.

8. Claim 13 is rejected, as best as it can be understood at this time, under 35 U.S.C. 103(a) as being unpatentable over **Sakai and EP**, as described above, further in view of **EP 728613**.

Sakai and EP disclose an electric device comprising a plurality of battery units detachably mounted, a driver/electric motor for driving a load, a charger/generator for charging the battery pack by referring to the information stored in the memory of each mounted battery unit, and a controller for controlling supply of electric power from each battery unit to the driver. Sakai and EP also disclose the

battery system monitoring the remaining capacity of the battery, but they do not disclose displaying it or providing an alarm.

EP 728613 discloses in the abstract a remaining capacity meter and insufficient capacity alarm means. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Sakai's and EP's apparatus and include a remaining capacity meter and insufficient capacity alarm means, as disclosed by EP 728613, in order to allow the driver to monitor an insufficient capacity of a storage battery.

9. Claim 20 is rejected, as best as it can be understood at this time, under 35 U.S.C. 103(a) as being unpatentable over **Sakai and EP**, as described above, further in view of **EP 698522**.

Sakai and EP disclose an electric device comprising a plurality of battery units detachably mounted, a driver/electric motor for driving a load, a charger/generator for charging the battery pack by referring to the information stored in the memory of each mounted battery unit, and a controller for controlling supply of electric power from each battery unit to the driver. Sakai and EP also disclose the battery system monitoring the remaining capacity of the battery, but they do not disclose monitoring a predetermined remaining capacity.

EP 698522 discloses in the abstract monitoring a predetermined remaining capacity in order to avoid the battery being unable to output an amount of electric energy sufficient enough to propel the vehicle. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Sakai's and EP's apparatus and monitor a predetermined remaining capacity, as disclosed by EP 698522, in order to avoid the battery being unable to output an amount of electric energy sufficient enough to propel the vehicle.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of

each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, as best as it can be understood at this time. The prior art cited in PTO-892 and not mentioned above disclose related apparatus, as best as it can be understood at this time.

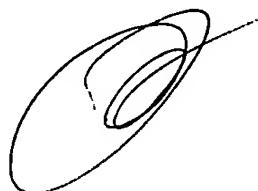
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (703) 308-7305. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (703) 308-1680.

13. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (703) 308-7722 or (703) 308-7724.

PFT

July 29, 2003

A handwritten signature in black ink, appearing to read "PFT", is positioned to the right of the typed name and date.